Articles

Acquired Immunodeficiency Syndrome and Human Immunodeficiency Virus Infection in Nevada

JOSEPH Q. JARVIS, MD, MSPH, *Denver, Colorado, and* SHERRY L. SEMIATIN, *Reno, Nevada*

We summarize information from three sets of epidemiologic data: the Nevada AIDS [acquired immunodeficiency syndrome] Surveillance System, which contains information about every case identified within the state boundaries through September 1989; the human immunodeficiency virus (HIV) seroprevalence reporting systems, which currently include data on all HIV-positive reports submitted statewide to public health authorities; and surveys on the knowledge, attitudes, and behaviors of Nevadans concerning HIV-related disease. The Nevada State AIDS Task Force outlined major policy recommendations, nearly half of which concerned testing; only 2 dealt with preventing HIV transmission. Greater efforts should go into education, particularly directed toward groups at greatest risk of exposure to HIV, and to improve community-based care of infected persons.

(Jarvis JQ, Semiatin SL: Acquired immunodeficiency syndrome and human immunodeficiency virus infection in Nevada. West J Med 1991 Jan; 154:40-42)

Nevada, which has nearly 0.4% of the population of the United States, also has 0.4% of reported cases of the acquired immunodeficiency syndrome (AIDS) in the US. The epidemiologic pattern in the state differs from that in the nation, however. The first cases in Nevada were reported in 1982, two years after the disease was first described elsewhere in the United States. Almost three fourths of Nevada's AIDS cases have been reported since January 1987. Half of the US cases ever diagnosed were reported during that same time period.

AIDS Incidence in Nevada

In the year that ended June 30, 1989, Nevada ranked 7th among the 50 states and the District of Columbia for the incidence of AIDS. As an illustration of the changing AIDS incidence in Nevada over the recent years, Figure 1 compares the AIDS incidence in the US with that in Nevada during the past decade. Both rates are continuing to increase, with Nevada sustaining a steeper rise during recent years than the US as a whole (Centers for Disease Control [CDC], *HIV/AIDS Surveillance* weekly [June 1982 through January 1989] and monthly [February 1989 through June 1989] reports). Substantial increases in AIDS morbidity and mortality will occur in the next few years in Nevada. Not all segments of the Nevada population have been affected equally by the AIDS epidemic. While 60% of Nevadans reside in Clark County (where Las Vegas is located), 72% of all AIDS cases are found there. The majority of cases occur in men aged 20 to 40 (AIDS Surveillance System, Nevada Division of Health, unpublished data, September 1989).

Seroprevalence of Human Immunodeficiency Virus

The prevalence of infection with the human immunodeficiency virus (HIV) is a major determinant of both future AIDS incidence and new HIV infection. A number of seroprevalence studies have been undertaken to quantify the extent of HIV infection in the US population, some of which are also being carried out in Nevada. Since the fall of 1985, all civilians applying for service in the military, including those from Nevada, have been screened for HIV antibodies (CDC, "Quarterly Data Report on HIV in Civilian Applicants for Military Service," written communication, June 1989). The seroprevalence of this group has remained steady or slightly declined over time, being about 0.15% in both the United States and Nevada. Another HIV-seroprevalence study in Nevada involves the unlinked anonymous testing of all newborns for antibody to HIV. Beginning in January 1989, all newborns in Nevada were screened for HIV antibodies. Through the first half year of the screening, fewer than 10,000 specimens had been processed and only 7 were confirmed positive. Nevada is one of few states with a mandatory HIV testing policy for prisoners. Beginning in 1985, all newly incarcerated criminals have been tested for HIV antibody (Table 1). With 13,281 nonduplicated tests done, 262 have been positive, for approximately a 2% positivity rate. This rate has not changed significantly over time.

Beginning July 1988, all laboratories doing HIV testing in Nevada have been required to report positive tests by age, sex, and county of residence. In all, 737 new HIV seroconversions were reported during the first year, which is not necessarily an unduplicated count. An additional 100 seroconversions are reported each year from anonymous test sites in public health clinics throughout the state. Taken together, these statistics seem to indicate that Nevada is experiencing nearly a thousand new HIV infections each year.

Prevalence of Knowledge, Attitudes, and Behaviors Related to HIV

The rapidity of the spread of HIV infection depends on the prevalence of the infection and of behaviors known to transmit the virus. Data about the prevalence of these behaviors among Nevadans as well as their knowledge and atti-

From the Medical Programs (Dr Jarvis) and the Office of Rural Health (Ms Semiatin), University of Nevada School of Medicine, Reno. Dr Jarvis is currently with the Occupational Medicine Program, National Jewish Center, Denver, Colorado.

Reprint requests to Joseph Q. Jarvis, MD, Occupational Medicine Program, National Jewish Center, 1400 Jackson St, Denver, CO 80206.

ABBREVIATIONS USED IN TEXT

AIDS = acquired immunodeficiency syndrome
CDC = Centers for Disease Control
HIV = human immunodeficiency virus

tudes about AIDS have been collected by the three public health agencies in the state (the Nevada Division of Health, the Washoe County District Health Department, and the Clark County District Health Department). Multiple groups were surveyed, such as persons attending sexually transmitted disease clinics; clients of the Women, Infants, and Children Food Program; clients of drug treatment programs; patients in family planning clinics; and some high school students. Because the sample was not randomly selected, the survey results cannot be considered representative of Nevadans. Of 2,600 people surveyed, about 80% were female; 60% were between the ages of 20 and 29. Recognizing these biases, the following points can be made:

- Misinformation about AIDS continues to trouble many of those surveyed. Only half the respondents knew that chickenpox is transmitted more easily than HIV and that mosquitoes do not transmit HIV. One in four thought that donating blood would put them at risk for HIV infection.
- The vast majority did not feel that they had had exposure to HIV, yet a quarter of them had had themselves tested for HIV antibodies. As many as 40% of the respondents were unsure what a positive HIV antibody test means.
- Most respondents described themselves as having changed personal behaviors in response to the AIDS epidemic.
- Nearly all respondents would want to be told if one of their sexual partners had a positive HIV test.
- Condom use is greatest among respondents with multiple sexual partners, but only a third of those with two or more partners describe regular use.
- Most respondents relied on radio and television for whatever AIDS information they receive.

HIV Policy in Nevada

Summaries of epidemiologic data concerning the Nevada HIV epidemic were published by the Nevada AIDS Task Force in 1987 and 1988. The state AIDS Task Force has made 41 recommendations to the Governor and the Nevada State Board of Health.[1] Of these recommendations, 19 concern HIV testing, 14 designate the state agencies needing HIV policies, and 6 concern HIV training or counseling. The remaining 2 recommendations are specifically preventive in scope. Given the steady increase of AIDS incidence and the apparent ongoing spread of HIV infection, it will be important for the state AIDS Task Force to go beyond these initial recommendations toward more definitive statements about reducing HIV morbidity and mortality in Nevada. Possible policy considerations include the following:

- Focus less on who should be tested for HIV and more on who should be educated about HIV. The behavior surveys in Nevada indicate that often the people who have been tested do not understand test results, nor do they possess good information about HIV-related diseases. Mandatory testing is expensive and adversarial in nature and not conducive to learning or behavior modification. Persons and communities are more likely to act appropriately when informed than when ordered.
- Focus intensive, substantive AIDS education outreach on groups most in need. In Nevada, men who have sex with other men continue to compose the majority of AIDS cases and to have the highest HIV seroprevalence. Efforts to assist gay communities elsewhere to build a social norm of abstinence or safer sex practices have been effective and should be organized in Nevada. A second group needing intensive AIDS education outreach are college-age Nevadans. The number of AIDS cases diagnosed before age 30 and the measurable prevalence of HIV antibodies in military recruits indicate that the college-age population is at increased risk for HIV transmission. These and perhaps other groups of Nevadans need more than radio and television information.
- Plans should be made to contact and counsel every Nevadan known to have exposure to HIV. Almost all respondents to the knowledge, attitude, and behavior survey indicated that they would prefer to be informed if their sexual contact was or became HIV-positive. Objections to partner notification have been based on cost, efficacy of treatment, and discrimination.[2] Published estimates of costs for partner notification place the price within reach of current nationwide funding. In Nevada, as few as ten additional case workers would be able to handle most if not all needed partner notification. Personal contact with counseling, because it discourages the denial of risk and encourages healthy behavior, may be the most effective treatment of persons with

TABLE 1.—*HIV Mandatory Testing in Nevada Prisons, 1985 to July 1989*

Year	Total Tested, No.	Total Positive, No.
1985	4,750	95
1986	2,210	44
1987	2,103	42
1988	2,603	52
1989	1,615	29
	13,281	262

HIV = human immunodeficiency virus

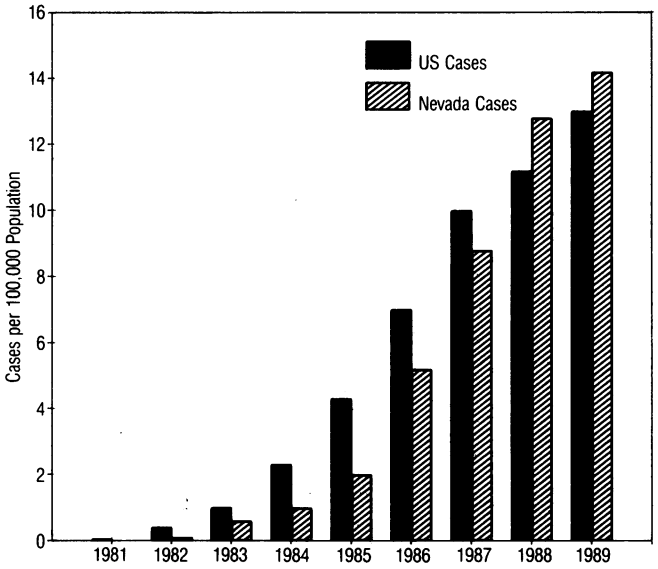

Figure 1.—The graph shows the estimated US and Nevada AIDS incidence rates for 1981 to July 1989 (from Centers for Disease Control *HIV/AIDS Surveillance* reports).

known HIV exposure. Statutory protection of public health records exists in Nevada, increasing the likelihood of confidentiality for reports.[3]

- Finally, the increasing number of persons with AIDS and the earlier identification of asymptomatic HIV-infected people must be addressed with organized community-based care for HIV morbidity. Advances in clinical medicine, such as delineating the biologic markers of disease progression and improvements in antiviral therapy and in the control of opportunistic infections, have enabled the medical community to offer effective early intervention to HIV-infected patients.[4] In addition to improved health for HIV-infected patients, organized early intervention offers the best opportunity for preventing the spread of infection.

All of these proposals cost money. The federal government is currently spending at least $1 billion annually on AIDS prevention and research, but not all states are equal partners in this expense. Nevada, ranking 7th in the AIDS incidence, ranked 24th among states for per capita state health agency AIDS expenditures budgeted for 1989 (*Public Health Macroview,* January/February 1989; 2:5). Consideration should be given to increasing state expenditures for the control of HIV-related morbidity and mortality in Nevada.

REFERENCES

1. AIDS and Nevada: Second Annual Report. Reno, Nevada Division of Health, September 1988

2. Potterat JJ, Spencer NE, Woodhouse DE, Muth JB: Partner notification in the control of human immunodeficiency virus infection. Am J Public Health 1989; 79:874-876

3. Stat Nev ch 138 1989

4. Arno PS, Shenson D, Siegel NF, Frank P, Lee PR: Economic and policy implications of early intervention in HIV disease. JAMA 1989; 262:1493-1498

BYPASS

They have taken pieces of your leg vein
And done what they can. Walking
On your land, you laugh: "We don't think
Of the heart as well protected" and thump
The ribs they had to break
Explaining how you'd been suffocating
For the past year, living on less
And less oxygen. Giddy with delight
You spread your arm to the shagbark hickories
That lean near stone fences. "I'm blessed
And I didn't know it 'til this;
I've work I love, family and friends,
Even my parents, getting on, are still alive."
You think you came to at one point,
Saw an instrument leaning
From the open cavity, a *trocar,*
"Can you imagine?" and describe
A tool for torture, instead of repair.
When you saw the red tracks of stitched skin
As if it were fabric to be pinched and sewn,
You say you spoke to yourself aloud:
"I'm still alive! Amazing!"
Now you've become devout, cherish
What's unseen and the smallest of animate things,
A piece of gray hickory bark that's come
Away on your hand, a dead scale of skin.

DONA LUONGO STEIN
Aptos, California